

## **Anomalous Temperature Dependence of the Surface Tension of Industrial Fe-Alloys**

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A series of microgravity experiments provided a discontinuous temperature dependence of the surface tension of several industrial alloys measured with the oscillating drop method in an electromagnetic levitation device. The temperature coefficient of the surface tension changed from positive at lower temperature to negative higher temperature with a sharp kink. The effect is seen to result from the presence of surface active element such as oxygen. Application of Belton's model based on the balance of temperature dependent adsorption and desorption and its effect on the surface tension as a function of temperature qualitatively reproduces the observed change from a positive to a negative temperature coefficient as a function of temperature. The sharp kink in the surface tension requires, however, in addition a change of the oxygen potential as a function of temperature at the liquid surface. Such change could be brought about by the formation of Fe-oxides in the gas phase due to the increased vapour pressure of Fe as a function of temperature.